

COLORADO DEPARTMENT OF PUBIC HEALTH AND ENVIRONMENT
WATER QUALITY CONTROL COMMISSION

REGULATION NO. 71

DILLON RESERVOIR CONTROL REGULATION

5 CCR 1002-71

ADOPTED:	June 12, 1984
EFFECTIVE:	July 30, 1984
AMENDED:	June 1, 1987
TRIENNIAL REVIEW:	June 1, 1987
TRIENNIAL REVIEW:	June 5, 1990
TRIENNIAL REVIEW:	December 7, 1993
AMENDED:	May 13, 1996
EFFECTIVE:	June 30, 1996
AMENDED:	July 14, 1997
EFFECTIVE:	August 30, 1997
AMEMDED"	January 8, 2001
EFFECTIVE:	March 2, 2001

REGULATION NO. 71

71.0 DILLON RESERVOIR CONTROL REGULATION

71.1 AUTHORITY

The Water Quality Control Commission is authorized by section 25-8-205, C.R.S., to promulgate control regulations to describe prohibitions, standards, concentrations, and effluent limitations on the extent of specifically identified pollutants that any person may discharge into any specified class of state waters.

71.2 DEFINITIONS

See the Colorado Water Quality Control Act and other Water Quality Control Commission regulations for additional definitions.

- (1) "NONPOINT SOURCE" - any activity or facility other than a point source from which pollutants are or may be discharged.
- (2) "DISPERSAL SYSTEM" - a system for the disposal of effluent, after final treatment in an individual sewage disposal system, by a method which does not depend upon or utilize the treatment capability of the soil.

71.3 WASTELOAD ALLOCATION FOR TOTAL PHOSPHORUS DISCHARGE

The dischargers listed below shall not discharge more than the indicated amounts of total phosphorus in any consecutive twelve month period except as provided in section 5 below.

<u>Discharge</u>	<u>Allowed Phosphorus Discharge (lb./yr.)</u>
Major Municipal	
Breckenridge SD	708.8
Copper Mt.Consolidated Metro District	205
Frisco SD	341
Snake River Plant	<u>340</u>
TOTAL	1,594.8
Minor Domestic	
Bekkedal Subdivision	2.5
High Country Lodge	1.7
Keystone A-Basin	11.4
Keystone Summit House	4.4
Summit Motor Inn	2.7
Vail Pass Rest Stop	<u>3.9</u>
TOTAL	26.6

71.4 MUNICIPAL AND DOMESTIC EFFLUENT LIMITATIONS

- (1) No new or existing municipal or domestic wastewater treatment plant treating more than 2,000 gallons per day in the Dillon Reservoir watershed shall discharge an effluent with a total phosphorus concentration greater than 0.5 mg/l total phosphorus, as a daily maximum. In the case of discharges from a dispersal system, this concentration must be documented either entering or leaving the dispersal system. Notwithstanding the discharge allowed by this subsection, the dischargers listed in section 3 shall not discharge more than the amounts listed therein.
- (2) The total phosphorus discharged in the Dillon Reservoir watershed by municipal sources and domestic sources, as shown in section 3, shall not exceed 1,621.4 pounds per year except as provided in section 5 below.
- (3) Annual phosphorus allocations for site approvals and permits issued to new facilities after July 30, 1984 shall be based on total phosphorus effluent quality of 0.2 mg/l based on a 30-day average and the design capacity of the treatment plant. However, such allocations may only be used if they are offset by discharge credits for nonpoint source controls obtained pursuant to section 5, below.

71.5 DISCHARGE CREDITS FOR NONPOINT SOURCES CONTROLS

- (1) The Water Quality Control Division is authorized by this regulation to issue point source discharge permits incorporating point sources--nonpoint sources tradeoffs in the Dillon reservoir watershed. Point source dischargers may control nonpoint sources of phosphorus and receive a credit toward their point source phosphorus allocation.
- (2) Credit shall only be granted for control of nonpoint sources in existence as of July 30, 1984. The amount of credit will be determined by using site-specific data or a water quality modelling approach for Dillon Reservoir, with review and approval by the Division. One pound of credit will be granted for each two pounds of phosphorus controlled.
- (3) To receive such credit, a point source discharger must apply to the Division with the following information demonstrating compliance with guidelines or regulations adopted by the Commission for control of nonpoint sources:
 - (a) design specifications for the nonpoint source controls for which credit is sought;
 - (b) the amount of total phosphorus which will be controlled;
 - (c) proposed construction requirements;
 - (d) proposed operation and maintenance requirements to assure continuous control;
and
 - (e) proposed monitoring and reporting requirements.
- (4) The permit will specify the following conditions at a minimum:
 - (a) the amount of point sources credit;

- (b) construction requirements;
 - (c) monitoring and reporting requirements; and
 - (d) operation and maintenance requirements.
- (5) No credits for nonpoint source controls shall be granted or incorporated into point source permits under this section 5 unless and until regulations have been adopted and implemented by local governments in the County, which regulations control contribution of nonpoint phosphorus from new earth disturbance and the nonpoint source runoff associated therewith.

71.6 CONTROL OF NEW NONPOINT SOURCES

- (1) The allowed point source phosphorus allocations in section 3 are based on the assumption that Summit County and local governments in Summit County adopt regulations that require best management practices or other methods of phosphorus control which will result in pound for pound mitigation for all new nonpoint sources of phosphorus. If the Division determines that nonpoint source controls are not adequate to prevent exceedance of the phosphorus standard for Dillon Reservoir, the Commission may reconsider the allowed phosphorus allocations in section 3.
- (2) The Division will report periodically to the Commission and to Summit County Local Governments on the results of any inspections conducted to evaluate nonpoint source controls.

71.7 MONITORING OF PHOSPHORUS IN DISCHARGES

- (1) Point Sources. All permits for point source discharges shall contain monitoring requirements for total phosphorus. The frequency of monitoring shall be at least once per month. The requirements shall provide for a 30-day average 7-day average, daily maximum, or other measurement of phosphorus concentrations and loadings, as determined by the Division.
- (2) Nonpoint source controls. All permits granting credit for nonpoint source controls shall contain monitoring requirements in accordance with guidelines and regulations for such controls adopted by the Commission.

71.8 BASIS AND PURPOSE

The specific statutory authority for this adoption is Section 25-8-105 and 25-8-205, C.R.S. (1982).

Control of both point sources and nonpoint sources of total phosphorus is essential to protect the quality and uses of Dillon Reservoir over the long term. This regulation is based on a state-local partnership in controlling total phosphorus. This relationship is described in the water quality management plan for the basin. These regulations provide the basis for State actions in protecting Dillon's quality. Local regulations will be used to control nonpoint sources. Taken

together these State and local regulations provide a mechanism for maintaining the quality of Dillon at the levels observed in 1982. As noted in Section 4.1.6, the Division will determine whether the local regulations are as effective as assumed or whether the allowed phosphorus discharges in Section 4.1.3 need to be adjusted to compensate for their ineffectiveness. It is anticipated that local governments will cooperate in providing information and assistance in determining their effectiveness.

The 1982 trophic status of Dillon Reservoir is considered adequate to maintain all existing uses over the long term. It is based on a total phosphorus loading of 10,162 pounds, an inflake total phosphorus concentration of 7.4 ug/l in the top fifteen meters as a growing season average, and a water yield from the watershed of 212,000 acre feet. At higher water yields the total phosphorus loading and inflake concentrations are expected to be exceeded. The assumptions regarding the sources and amount of loading for Dillon Reservoir are contained in Table I., attached hereto.

Total phosphorus loading varies with the water yield from the Dillon watershed. For the purpose of determining progress in achieving phosphorus controls, 1982 will be used as the base year. Mathematical relationships contained in the "Clean Lake Study of Dillon Reservoir in Summit County, Colorado" will be used to index future yields of phosphorus to the 1982 base year.

The water quality standard for total phosphorus in Dillon Reservoir of 7.4 ug/l is found at 5 CCR 1002-8. The phosphorus allocations contained in this regulation are expected to be adequate through 1990. The allocation will be reexamined at that time.

Adopted	June 12, 1984
Effective	July 30, 1984

FISCAL IMPACT STATEMENT
on the Assignment of a Phosphorus (P) Standard
to the Dillon Reservoir, Segment 3, of the Blue River

I. INTRODUCTION

As a man-made impoundment, Dillon Reservoir is a large water supply reservoir of over 1,800 surface acres and serves over half of the water supply needs of the Denver Water Board. This basic use of the impoundment would continue essentially unaffected by the phosphorus limitation decisions of the Commission. Although algae development as a result of the introduction of nutrients such as phosphorus can create a considerable taste and odor problem for a water supply use, this standard renders such concerns improbable. Agricultural uses, to the extent they can be linked to Dillon Reservoir, are most likely immune to the decisions regarding phosphorus. The two remaining classified uses, cold water aquatic life and recreation, may be affected to some extent by the standard set, so that is where the discussion of Dillon Reservoir beneficial use values is centered.

II. FISCAL IMPACT - BENEFITS

Evidence submitted to the Commission concerning the direct market value of the reservoir in relation to recreation and aesthetic considerations indicates that over \$500,000 is spent annually by recreationists in Summit County for activities relating to Dillon Reservoir and at least eleven million dollars worth of real property can be linked to the presence and quality of the impoundment. In

addition, the indirect sales generated by the primary expenditures are in excess of four million dollars annually. Finally, government revenues generated by both property taxes and sales linked to Dillon are in excess of \$90,000 per year. An important consideration should be stressed regarding these figures. They represent only the economic value of Dillon Reservoir to Summit County. It can be safely assumed that a great deal of economic activity, indeed the majority of the direct expenditures associated with recreating at the lake, occur outside of Summit County. Boat and other equipment purchases likely occur at the county of origin.

Although the Commission is unaware of any specific study that estimates the non-market value of Dillon Reservoir, the Commission takes note of several considerations regarding the non-market side. Lake Dillon has had summer visitation as high as 428,380 visitor days. Economic theory and practice suggests that it is reasonable to assume that these recreationists would be willing to spend more than their direct expenditures to enjoy the resource by the marginal difference in value they associate with their experiences at Dillon as opposed to what they perceive as substitutes, if any. A highly conservative estimate of willingness-to-pay would be the difference in transportation costs between traveling to Dillon and these substitutes. Additionally, welfare economic theory indicates that recreation as a human activity has a value relating to the time spent by recreationists. Using this time value approach, the Commission hearing evidence that suggests that the non-market value of Dillon could potentially be over eleven million dollars annually.

The Commission does not consider the best available economic evidence to be a complete portrayal of the potential economic impacts of a phosphorus standard. The Commission recognizes that there is a level of uncertainty regarding the linkages between nutrient loading and algal development even greater uncertainty surrounding the linkages between increased algal development and impairment of beneficial uses. However, the Commission is aware that there are such linkages and that they may be quite significant. Evidence was presented to the Commission that estimated economic impacts of eutrophication. Using the years 1988 and 1993 for projections, testimony indicated that direct expenditure loss would be \$305,900 and \$527,600 respectively. Indirect sales and property expenditures would still grow in Summit County, but at a significantly lesser rate than if the reservoir's quality remained unaffected. Non-market losses attributable to eutrophication would be \$157,500 in 1988 and \$181,500 in 1993. Using the time-value/opportunity-cost approach, the loss due to eutrophication would be over 1.4 million dollars in 1988 and over 1.6 million in 1993. With these figures in mind, the Commission takes note that the social and economic costs of allowing Dillon Reservoir to become eutrophic could be over two million dollars annually.

III. FISCAL IMPACT - COSTS

The Commission heard testimony and received evidence concerning the costs to maintain the quality of Dillon Reservoir and found that the worst case approach, with no non-point source trade-offs, would cost slightly over 1.5 million dollars annually. With point/non-point trading, however, this figure is reduced to just slightly over three quarters of a million dollars annually. The Commission notes that those who would bear these costs, the municipal dischargers, recognize the costs as reasonable in relationship to the benefits to be maintained.

IV. CONCLUSION

The Commission recognizes that the economic value of Dillon Reservoir is quite substantial as is indicated by the best available evidence. Combining the market and the non-market values, Dillon already has accounted for tens of millions of dollars with several million dollars being added annually. The Commission notes that the potential losses which could result from less stringent controls could

seriously impact this value. The Commission also recognizes that the costs to prevent these losses are significantly less than the potential losses and that those who would bear the costs are in support of this phosphorus standard. Although the Commission would caution against the natural temptation to directly weigh these cost and value-loss measures in a cost/benefit approach because the beneficial use values may be understated to a significant degree, these figures nonetheless demonstrate that maintaining the water quality at Dillon Reservoir is quite defensible on economic grounds. For these reasons the Commission finds that it has acted responsibly and that this regulation is economically reasonable.

71.9 STATEMENT OF BASIS, SPECIFIC STATUTORY AUTHORITY AND PURPOSE NOVEMBER, 1995 RULEMAKING

The provisions of sections 25-8-201(1)(c) and (2); and 25-8-205 C.R.S., provide the specific statutory authority for adoption of the attached regulatory amendments. The Commission also adopted, in compliance with 24-4-103(4) C.R.S., the following statement of basis and purpose.

BASIS AND PURPOSE

This hearing was requested by the Summit Water Quality Committee. The purpose of the request was to make several changes to the regulation. The first was to update point source phosphorus allocations to reflect point source--nonpoint source tradeoffs that have occurred and to remove point source allocations for minor domestic facilities which have been connected to local sewer systems. These specific changes include adding eleven pounds to the Breckenridge Sanitation District's phosphorus allocation in the regulation as credit for removing the nonpoint source septic system in the LakeView Meadows subdivision. These credits are already reflected in the Breckenridge Sanitation District's CDPES discharge permit. An additional 0.5 pounds of credit is given for the Breckenridge Sanitation District's participation in the removal of the nonpoint source septic system associated with the Breckenridge Ski Areas Peak 8 Restaurant.

Another change in point source phosphorus allocations results from combining the allocations for the Quandry and Skier's Edge Condominiums, since these units are now served by a single wastewater treatment facility and have a single discharge permit. The other changes are the removal of the allocations for septic systems for Breckenridge Ski Areas Peaks 8 and 9, as these areas are now serviced by the Breckenridge Sanitation District's main treatment plant, and removing the allocations for the septic systems serving the Ski Tip Ranch and Snake River Saloon because these areas are now serviced by the Snake River Wastewater Treatment Plant.

The second significant change in this rulemaking was to require that the determination of point source phosphorus allocation credits for nonpoint source controls, as outlined in Section 4.1.5, will be based on site-specific data on the amount of nonpoint source phosphorus controlled or on use of a water quality modelling approach which approximates the phosphorus poundage which has been reduced. Previously these credits were to be "determined by guidelines or regulations adopted by the Commission". However, the guidelines which have been used address only the procedural aspects of implementing a point-nonpoint source phosphorus trade. No methodology for quantifying credits for nonpoint source controls has been provided. Much of the rationale for adopting the in-lake standard and associated phosphorus allocations was based on information contained in the "Clean Lake Study of Dillon Reservoir in Summit County, Colorado" which includes the Lake Dillon Water Quality model. It is therefore appropriate and consistent to determine credits using the loading equations contained in this model, other appropriate modeling of phosphorus reductions, or site-specific data for the nonpoint source control project which is the basis for the point source credit request.

Since the Clean Lakes Study was completed the model has been updated to reflect information generated by the on-going local water quality monitoring efforts. As a result of re-calibration of the model it is estimated that a total annual phosphorus load in excess of 8,350 pounds, in combination with a water yield from the watershed of 212,000 acre feet, will result in exceeding the water quality standard of 7.4 ug/l total phosphorus, which is a growing season average for the months of July, August, September, and October. Local water quality management efforts are focused on preventing phosphorus loads from exceeding this quantity. Because it is likely that monitoring will continue and that the model will be re-calibrated in the future to reflect additional information, local entities requested that the credits be based on the most recent version of the Lake Dillon Water Quality Model or a similar water quality, loading-based model that fulfills the same, basic elements. The revisions adopted assure that this option is available, although not mandated. The Division is required to review and approve any credits, if the request meets the criteria outlined in 4.1.5 (3).

The third significant change made in this regulation revision deals with Section 4.1.6 Control of New Nonpoint Sources. Language is now included which states that the point source phosphorus allocations are based on the assumption that county and local governments require controls that achieve pound for pound mitigation for all new nonpoint sources of phosphorus. The previous language in this section was unclear as to the intent for nonpoint phosphorus control. Language was added to clarify that if the Division determines that nonpoint source controls do not appear to be adequate to prevent exceedances of the Dillon Reservoir phosphorus standard, then the Commission may reconsider the point source allocations. Any evaluation data gathered by the Division on nonpoint source controls in Summit County will be reported to the county or appropriate local governments. The sentence in the original rule about the Division conducting periodic site inspections if at all possible was deleted as unnecessary, although the Commission intends that the Division will monitor implementation of the rule to the extent that resources permit.

The Commission also chose not to adopt in this hearing two proposals included in the hearing notice. The original proposal would have established a "reserve pool" minor domestic point source allocation for phosphorus. Discussion at the hearing raised issues regarding the appropriate source of phosphorus for a reserve pool allocation, how the reserve pool would be administered, and the disposition of removed allocations. Following further input from the Division and the parties, the Commission has determined that is not necessary or appropriate to establish a reserve pool at this time, particularly considering the difficulties in resolving these issues.

The second proposal that the Commission chose not to adopt would have established a point source to point source transfer mechanism for phosphorus allocations. Following further input from the Division and the parties, the Commission has determined that it is not necessary or appropriate to establish such a transfer mechanism at this time, particularly considering unresolved issues regarding the potential impact of such a transfer mechanism on the total point source phosphorus loadings to the reservoir.

PARTIES TO THE RULEMAKING HEARING

1. Summit Water Quality Committee
2. Ralston Resorts, Inc.
3. Intrawest/Keystone L.L.C.
4. City and County of Denver, Acting by and through its Board of Water Commissioners
5. Northwest Colorado Council of Governments
6. Grove Constructed Wetlands

71.10 STATEMENT OF BASIS, SPECIFIC STATUTORY AUTHORITY AND PURPOSE; JULY, 1997 RULEMAKING

The provisions of sections 25-8-202 and 25-8-401, C.R.S., provide the specific statutory authority for adoption of the attached regulatory amendments. The Commission also adopted, in compliance with section 24-4-103(4) C.R.S., the following statement of basis and purpose.

BASIS AND PURPOSE

The Commission has adopted a revised numbering system for this regulation, as a part of an overall renumbering of all Water Quality Control Commission rules and regulations. The goals of the renumbering are: (1) to achieve a more logical organization and numbering of the regulations, with a system that provides flexibility for future modifications, and (2) to make the Commission's internal numbering system and that of the Colorado Code of Regulations (CCR) consistent. The CCR references for the regulations will also be revised as a result of this hearing.

71.11 STATEMENT OF BASIS, SPECIFIC STATUTORY AUTHORITY AND PURPOSE; JANUARY, 2001 RULEMAKING

BASIS AND PURPOSE

This rulemaking is intended to update the regulation to reflect point source – nonpoint source tradeoffs that have occurred in the Dillon Reservoir watershed and to combine all point source allocations of the Breckenridge Sanitation District to a single total phosphorus allocation. These changes include adding 40 pounds to the Copper Mtn. Consolidated Metro District's phosphorus allocation in the regulation as credit for the removal of nonpoint source septic systems in the Ten Mile Creek drainage. These changes will not result in an overall increase in the total phosphorus load to Dillon Reservoir because the increase in allowable point source load is offset by a two-fold reduction in nonpoint source load.

Consolidation of Breckenridge Sanitation District (BSD) Phosphorus Allocations – BSD is the only entity providing central sewer treatment service in the entire Blue River watershed upstream of Dillon Reservoir. BSD currently owns and operates seven wastewater treatment facilities listed in section 4.1.3 of the Control Regulation. Several of the BSD facilities have recently been combined into a single more efficient treatment plant.

BSD has been a leader in phosphorus removal nationwide through a combination of advanced treatment facilities and significant operational expertise. This rulemaking combines all total phosphorus allocations for treatment facilities located in the BSD service area into a single total phosphorus allocation to enable streamlined facility consolidation, flexibility in operation, and improved reporting to the Division. A single total phosphorus allocation also updates the Control Regulation to the current operations and permitting situation of the BSD. This request fits within the original pollution control "bubble concept" outlined in the phosphorus management plan for Dillon Reservoir and is wholly supported by the Summit Water Quality Committee.

PARTIES TO THE RULEMAKING HEARING

1. Summit Water Quality Committee